

AD-A142 877

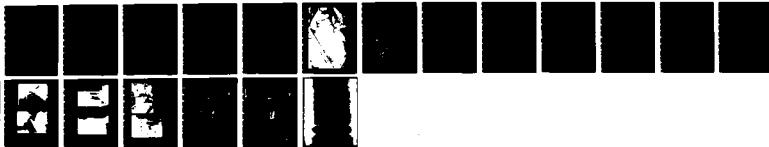
NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS  
BEAVER BROOK DAM (CT.) (U) CORPS OF ENGINEERS WALTHAM MA  
NEW ENGLAND DIV APR 84

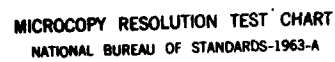
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**MICROCOPY RESOLUTION TEST CHART**  
**NATIONAL BUREAU OF STANDARDS-1963-A**

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER CT 00085	2. GOVT ACCESSION NO. AD-A142 877	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Beaver Brook Dam Housatonic River Basin, Milford, Conn. NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS		5. TYPE OF REPORT & PERIOD COVERED INSPECTION REPORT
7. AUTHOR(s) U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DIVISION		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS DEPT. OF THE ARMY, CORPS OF ENGINEERS NEW ENGLAND DIVISION, NEDED 424 TRAPELO ROAD, WALTHAM, MA. 02254		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE April 1984
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18. SUPPLEMENTARY NOTES Cover program reads: Phase I Inspection Report, National Dam Inspection Program; however, the official title of the program is: National Program for Inspection of Non-Federal Dams; use cover date for date of report.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) DAMS, INSPECTION, DAM SAFETY,  Beaver Brook Dam Housatonic River Basin Milford, Conn.		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Beaver Brook Dam was constructed about 1897 by the Milford Water Co. and is currently owned by the New Haven Water Co. It is used to impound water for public water supply. The dam was originally constructed of rubble masonry with upstream and downstream earth embankments. In 1928 the dam was reconstructed by removing the upstream earth embankment, constructing a 3'-6" concrete facing on the upstream face and a concrete cap on the crest, and constructing a new concrete spillway and brick gatehouse. The dam has a maximum height of 17 ft.		

AD-A142 877

DTIC FILE COPY

BEAVER BROOK DAM  
CT 00085

HOUSATONIC RIVER BASIN  
MILFORD, CONNECTICUT



PHASE I INSPECTION REPORT  
NATIONAL DAM INSPECTION PROGRAM

49-043

84 07 11 083

4/81

**ROALD HAESTAD, INC.**  
CONSULTING ENGINEERS

37 Brookside Road • Waterbury, Conn. 06708 • Tel. 203 753-9800

May 18, 1981

The Department of the Army  
Corps of Engineers  
New England Division  
424 Trapelo Road  
Waltham, Massachusetts 02154

Attention: E. P. Gould  
Project Manager

Re: Beaver Brook Dam  
(a/k/a Milford Reservoir Dam)  
Milford, Connecticut

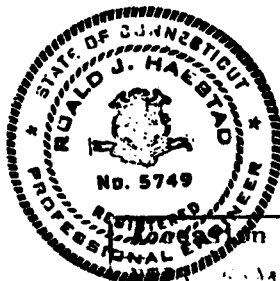
Gentlemen:

Following field investigations of Beaver Brook Dam, we conclude that the dam is too small to qualify under the Federal Dam Inspection Program. Field observations also indicate that the dam should be classified as "Low" potential hazard.

We are enclosing a brief letter report substantiating our findings.

Very truly yours,

ROALD HAESTAD, INC.



*Roald Haestad*  
Roald Haestad

RH:RGL:cft



A1

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OVERVIEW PHOTO

U.S ARMY ENGINEER DIV NEW ENGLAND  
CORPS OF ENGINEERS  
WALTHAM, MASSACHUSETTS

ROALD HAESTAD, INC.  
CONSULTING ENGINEERS  
WATERBURY, CONNECTICUT

NATIONAL PROGRAM OF  
INSPECTION OF  
NON-FED. DAMS

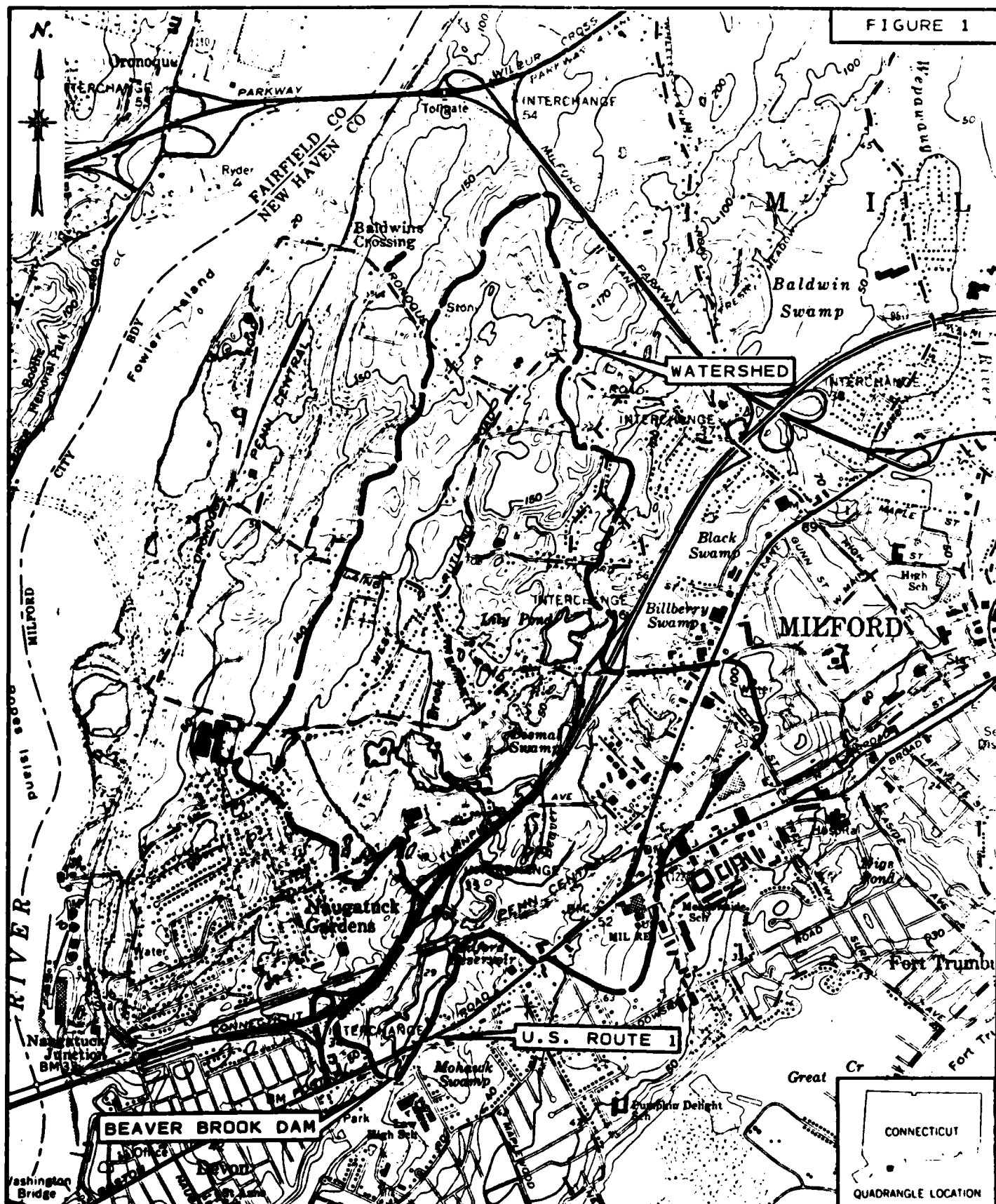
BEAVER BROOK DAM - CT 00085

BEAVER BROOK

MILFORD, CONNECTICUT

7 APRIL 1981

FIGURE 1



LOCATION PLAN

BEAVER BROOK DAM  
MILFORD, CONNECTICUT

SCALE: 1" = 2000'

ROALD HAESTAD, INC.

MILFORD QUADRANGLE 1971



## DESCRIPTION

BEAVER BROOK DAM (a/k/a Milford Reservoir Dam)  
CT 00085  
Town of Milford, New Haven County, Connecticut  
On the Beaver Brook  
Owned and Operated by The New Haven Water Company

The Beaver Brook Dam was constructed about 1897 by the Milford Water Company and is currently owned by the New Haven Water Company. It is used to impound water for public water supply.

The dam was originally constructed of rubble masonry with upstream and downstream earth embankments. In 1928 the dam was reconstructed by removing the upstream earth embankment, constructing a 3'-6" concrete facing on the upstream face and a concrete cap on the crest, and constructing a new concrete spillway and brick gatehouse. The dam has a maximum height of 17 feet. Plans indicate that the dam is founded on ledge for its entire length. The spillway is located in the center of the dam and is 20 feet wide and 2 feet below the crest of the dam. Ledge was exposed in the spillway channel. The bottom beams of a wooden footbridge which crosses the spillway are below the crest of the dam.

A brick gatehouse is located to the left of the spillway on the upstream face of the dam, and contains manually operated control valves for a 12-inch blowoff and a 20-inch outlet pipe.

The dam was inspected on April 6, 1981 when the water level was 0.2 feet above the spillway. The dam appeared to be in good condition, with only some minor concrete spalling along the crest and lower training wall.

The dam has a watershed of 1.7 square miles and a storage capacity of 95 Acre-Feet at the top of the dam. Approximately 300 feet upstream of the dam U.S. Route 1 crosses the reservoir. The highway is about 80 feet wide and has a single 3' x 6' box culvert. The capacity of the culvert was calculated to be about 250 cfs.

The capacity of the impoundment between the dam and U.S. Route 1 is about 11 Acre-Feet. Failure of the dam would release only this lower portion of the impoundment as the highway embankment is unlikely to fail.

Based on the Corps of Engineers' Recommended Guidelines for Safety Inspection of Dams, a dam with a height of less than 25 feet and a storage capacity of less than 50 Acre-Feet would not meet the requirements for a "Small" dam, and is not included in the Corps of Engineers' Inspection Program. As Beaver Brook Dam is only 17 feet high and, on failure, would release only 11 Acre-Feet, the dam is too small to be included in the inspection program.

An inspection and field surveys of the downstream channel indicate that the dam should be classified as "Low" hazard potential. There is ample storage capacity in the downstream reach to dissipate the flood wave from a failure of Beaver Brook Dam.

**APPENDIX A**  
**Engineering Data**

## NEW HAVEN WATER COMPANY

NAME OF DAM Beaver Brook

TYPE Original construction about 1897 was a rubble masonry retaining wall backed by earth embankment and about 190 feet long with maximum height of 12 feet. In 1928 reconstruction, a 3' 6" thick concrete facing was placed on the top; a new, larger concrete spillway 1.15 feet higher than the original and a new brick and concrete intake structure were built.

LOCATION In the town of Milford, Connecticut on Beaver Brook approximately 400 feet south of, and downstream from, the Boston Post Road, U. S. Highway No. 1, designated locally as Bridgeport Avenue.

SUPPLY SYSTEM Beaver Brook

## DATE OF CONSTRUCTION

ORIGINAL Approximately 1897 by Milford Water Company

OTHER 1928 - reconstruction as above noted

## ENGINEER

±1897 - not known  
1928 - Albert B. Hill

## CONTRACTOR

Not known  
C. W. Blakeslee & Sons, Inc.

	<u>Elevation</u>	<u>Length (Ft.)</u>	<u>Miscellaneous</u>
CREST	26.5 MHW	210	Includes spillway
SPILLWAY	24.5 MHW	20	Stepped spillway
AXIS OF B. O.	10.7 MHW	±300	12" thru gatehouse ±16" after gatehouse
BED OF RIVER	10 MHW	-	
DEEPEST FOUNDATION	5 MHW	-	

DATE August 1974

## NEW HAVEN WATER COMPANY

Name of Dam Beaver Brook

HEIGHT FROM BED OF BROOK	16.5 feet
HEIGHT FROM DEEPEST FOUNDATION	21.5 feet
TOP WIDTH            6 ft. plus 6 in. coping =	6.5 feet
MAXIMUM WIDTH AT BOTTOM	30.0 feet
UPSTREAM SLOPE    of concrete facing    1 Hor. on 12 Ver.	
DOWNSTEAM SLOPE    of earth embankment    2 Hor. on 1 Ver.	
FREE BOARD - SPILLWAY TO CREST	2.0 feet
- SPILLWAY TO TOP OF COREWALL	-

MISCELLANEOUS DATA    Milford Water Company merged into New Haven Water Company in 1966.

A considerable depth of mud, peat, etc. was removed from Beaver Brook Reservoir in the area of the reservoir between Bridgeport Avenue and the R.R. in the winter of 1943-44.

## WATERSHED TRIBUTARY TO:

UPSTREAM DAMS	None
THIS DAM	1.3 Sq. Mi.
TOTAL WATERSHED TRIBUTARY TO THIS DAM	1.3 Sq. Mi.
RESERVOIR AREA AT FLOW LINE	13.1 Acres
RESERVOIR CAPACITY AT FLOW LINE - usable top 10'	22 Mil. Gal.
RESERVOIR USABLE CAPACITY (To Lowest Outlet)	-
UPSTREAM DAMS        None	

DOWNSTEAM DAMS        Recreation pond

## NEW HAVEN WATER COMPANY

## STATISTICS ON DAMS\*

NAME Beaver BrookSUPPLY SYSTEM Beaver BrookLOCATION MilfordDATES: ORIGINAL CONSTRUCTION 1897<sup>±</sup>ADDITIONS, ALTERATIONS 1928

	MEAN HIGH WATER ELEVATION	LENGTH
CREST**	26.5	210 Ft.
TOP OF CORE WALL		
SPILLWAY	24.5	20 Ft.
B. O. AXIS	10.7	300 <sup>±</sup> Ft.
BED OF RIVER	10 <sup>±</sup>	
DEEPEST FOUNDATION	5 <sup>±</sup>	

FREEBOARD: CREST TO SPILLWAY 2.0 Ft.

CREST TO TOP OF CORE WALL \_\_\_\_\_

HEIGHT: CREST TO BED OF BROOK 16.5<sup>±</sup>CREST TO DEEPEST FOUNDATION 21.5<sup>±</sup>TYPE Concrete, rubble and earthTOP WIDTH--MAX. BOTTOM WIDTH (Ft.) 6.5 -- 30<sup>±</sup>UPSTREAM SLOPE H/V 1/12 Concrete FaceDOWNSTREAM SLOPE H/V 2/1 Earth EmbankmentTRIBUTARY WATERSHED (Square Miles) 1.3RESERVOIR AREA (Acres) 13.1

RESERVOIR TOTAL STORAGE (MG) \_\_\_\_\_

RESERVOIR USABLE STORAGE (MG) 22 top 10 feet

\*See individual sheets for more details

\*\*Crest Length includes spillway

Date 8/12/74

**APPENDIX B**

**Photographs**

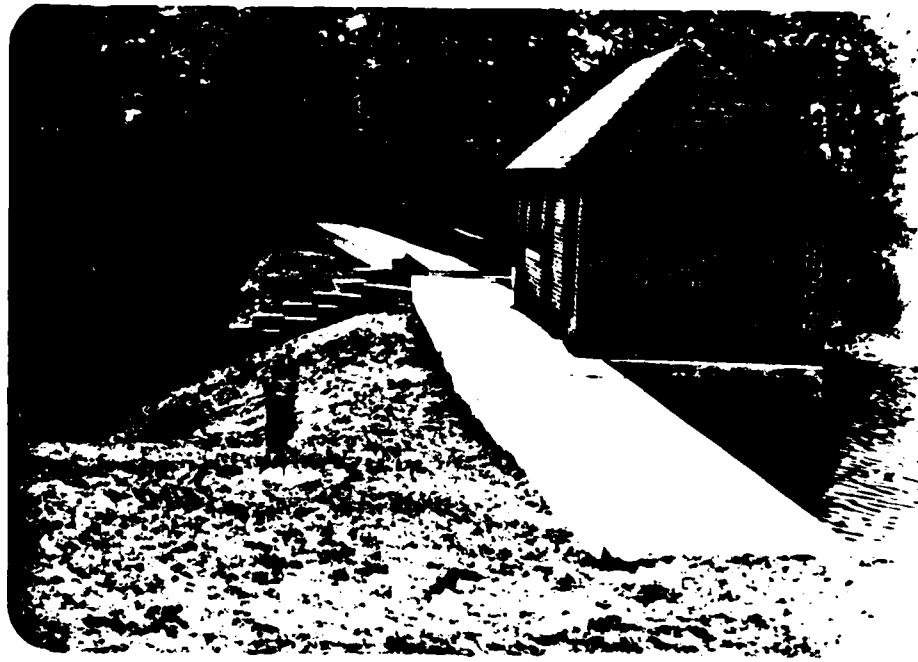


PHOTO NO. 1

DAM AND GATEHOUSE FROM LEFT ABUTMENT.



PHOTO NO. 2

DAM FROM RIGHT ABUTMENT.

U.S. ARMY ENGINEER DIV NEW ENGLAND  
CORPS OF ENGINEERS  
WALTHAM, MASSACHUSETTS

ROALD A. ESTAD, INC.  
CONSULTING ENGINEERS  
WATERBURY, CONNECTICUT

NATIONAL PROGRAM OF  
INSPECTION OF  
NON-FED. DAMS

BEAVER BROOK DAM  
BEAVER BROOK  
MILFORD, CONNECTICUT  
CT 00085  
6 APRIL 1981





PHOTO NO. 3

SPILLWAY FROM DOWNSTREAM. NOTE FOOTBRIDGE  
AND BRACKETS FOR FLASHBOARDS.



PHOTO NO. 4

DAM LOOKING DOWNSTREAM FROM U.S. ROUTE 1.

U.S. ARMY ENGINEER DIV. NEW ENGLAND  
CORPS OF ENGINEERS  
WALTHAM, MASSACHUSETTS

ROALD MAESTAD, INC.  
CONSULTING ENGINEERS  
WATERBURY, CONNECTICUT

NATIONAL PROGRAM OF  
INSPECTION OF  
NON-FED. DAMS

BEAVER BROOK DAM  
BEAVER BROOK  
MILFORD, CONNECTICUT  
CT 00085  
6 APRIL 1981



PHOTO NO. 5 \*

DAM, IMPOUNDMENT AND DOWNSTREAM AREA. NOTE WIDTH OF HIGHWAY, SMALL IMPOUNDMENT BETWEEN HIGHWAY AND DAM, SMALL DOWNSTREAM RECREATIONAL POND, AND UNDEVELOPED FLOOD PLAIN.



PHOTO NO. 6

CLOSE-UP OF AREA IMMEDIATELY BELOW DAM.

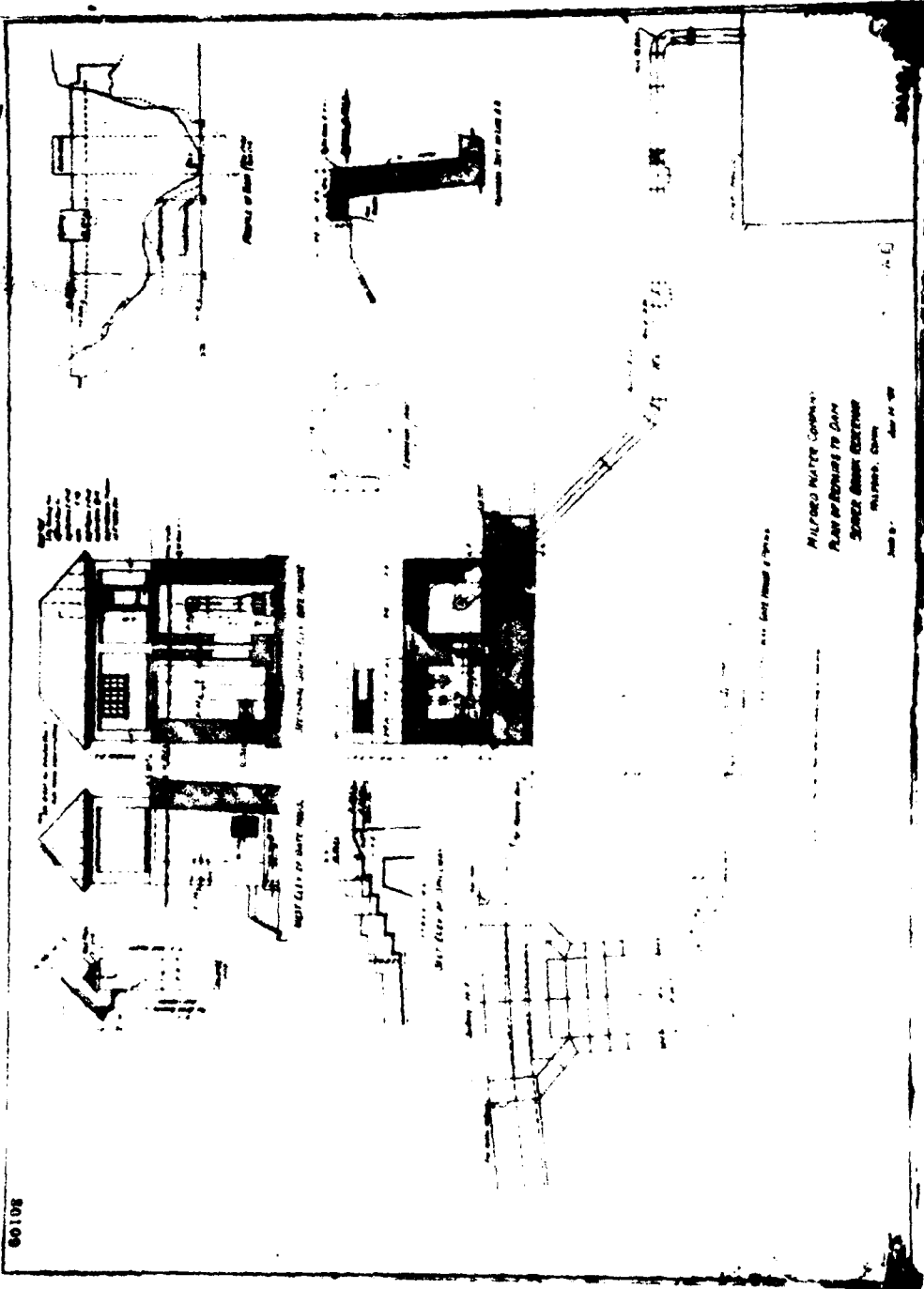
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ROALD M. STAD, INC.  
CONSULTING ENGINEERS  
WATERBURY, CONNECTICUT

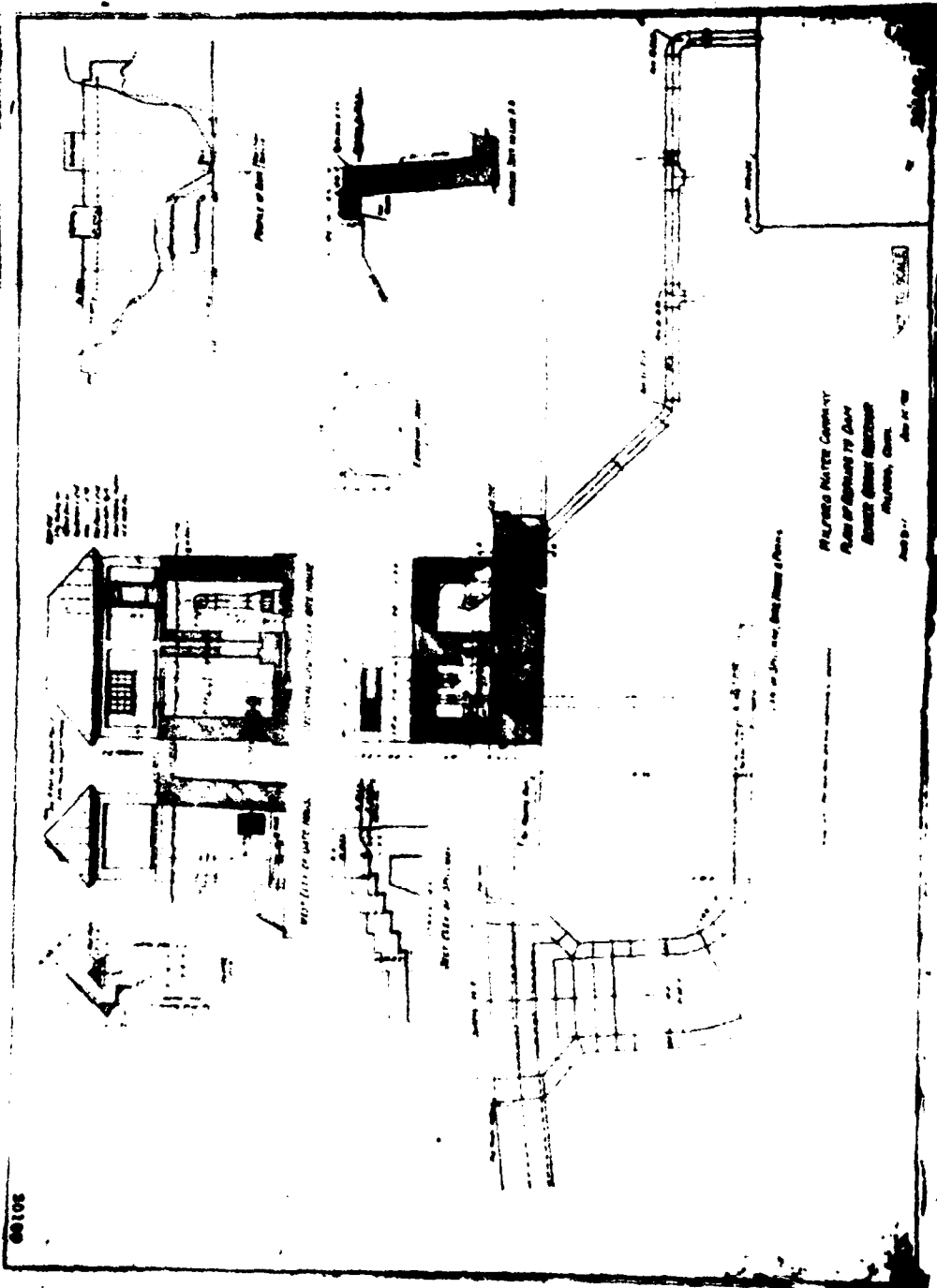
NATIONAL PROGRAM OF  
INSPECTION OF  
NON-FED. DAMS

BEAVER BROOK DAM  
BEAVER BROOK  
MILFORD, CONNECTICUT  
CT 00085  
6 APRIL 1981



60108

MILFORD WATER COMPANY  
PLAN OF DAM TO BE BUILT AT  
SPENCE BRIDGE, CHINA  
JAN 19 1910



PLANNED NORTH CAMPUS  
 PLAN OF BUILDING BY DAY  
 NORTH CAMPUS BUILDING  
 NORTH CAMPUS  
 NORTH CAMPUS

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